



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/821,852	04/12/2004	Masakatsu Maeda	251428US90	1750
22850	7590	09/21/2006	EXAMINER	
C. IRVIN MCCLELLAND OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314				FEELY, MICHAEL J
ART UNIT		PAPER NUMBER		
		1712		

DATE MAILED: 09/21/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/821,852	MAEDA, MASAKATSU	
	Examiner	Art Unit	
	Michael J. Feely	1712	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 12 April 2004.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-8 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO/SB/08)
 Paper No(s)/Mail Date 20040412,20051004.
- 4) Interview Summary (PTO-413)
 Paper No(s)/Mail Date. _____.
- 5) Notice of Informal Patent Application
- 6) Other: _____.

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-4, 6, and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by JP 2002-348439.

Regarding claims 1-4, 6, and 8, the reference discloses: (1) an epoxy resin composition for semiconductor encapsulation comprising an epoxy resin, a phenol resin, an inorganic filler, a curing accelerator, and a carbon precursor (Abstract) having a specific electric resistivity in a semiconductor region of $1 \times 10^2 \Omega^*cm$ or more but less than $1 \times 10^7 \Omega^*cm$ (Abstract) as essential components, wherein the amounts of the inorganic filler and the carbon precursor in the epoxy resin composition are respectively 65-92 wt% and 0.1-5.0 wt% (Abstract);

(2) wherein the carbon precursor has an H/C ratio by weight determined by elemental analysis of 2/97 to 4/93 (paragraphs 0005 & 0010);

(3) wherein the carbon precursor is fine particles having an average particle diameter of 0.5-50 μm (paragraphs 0005 & 0010); (4) wherein the carbon precursor is fine particles having an average particle diameter of 0.5-20 μm (paragraphs 0005 & 0010);

(6) wherein the amount of inorganic filler in the total amount of the epoxy resin composition is 70-91 wt% (Abstract; paragraph 0007); and

(8) a semiconductor device comprising a semiconductor element encapsulated using the epoxy resin composition for semiconductor encapsulation according to any one of claims 1-7 (Abstract).

Claim Rejections - 35 USC § 102/103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 5 and 7 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over JP 2002-348439.

Regarding claim 5, the reference does not explicitly disclose: (5) a resistivity range of $1 \times 10^4 \Omega^*\text{cm}$ or more but less than $1 \times 10^7 \Omega^*\text{cm}$. However, it appears that this would have been an inherent property because the reference satisfies all of the material limitations set forth in the instant invention. In light of this, it has been found that, "Products of identical chemical composition can not have mutually exclusive properties." A chemical composition and its properties are inseparable. Therefore, if the prior art teaches the identical chemical structure, the

properties applicant discloses and/or claims are necessarily present – *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990).

Therefore, the resistivity range of claim 5 would have been inherently satisfied by the reference because the references satisfies all of the material limitations set forth in the instant invention.

Regarding claim 7, the reference does not explicitly disclose: (7) wherein the carbon precursor is produced by carbonizing a phenol resin at a calcination temperature of 600-650 °C. However, this is a product-by-process limitation. In light of this, it has been found that, “[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process” – *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985).

Therefore, the carbon precursor and composition of claim 7 would have been inherently satisfied by the reference because the product in claim 7 is the same as or obvious from the product of the prior art. The claim is unpatentable even though a different process may have made the prior product.

6. Claims 1 and 3-8 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over JP 2001-247747.

Regarding claims 1, 3-6, and 8, the reference discloses: (1) an epoxy resin composition for semiconductor encapsulation comprising an epoxy resin, a phenol resin, an inorganic filler, a

curing accelerator, and a carbon precursor (Abstract) as essential components, wherein the amounts of the inorganic filler and the carbon precursor in the epoxy resin composition are respectively 65-92 wt% and 0.1-5.0 wt% (Abstract);

(3) wherein the carbon precursor is fine particles having an average particle diameter of 0.5-50 μm (Abstract; paragraph 0011); (4) wherein the carbon precursor is fine particles having an average particle diameter of 0.5-20 μm (Abstract; paragraph 0011);

(6) wherein the amount of inorganic filler in the total amount of the epoxy resin composition is 70-91 wt% (Abstract; paragraph 0008); and

(8) a semiconductor device comprising a semiconductor element encapsulated using the epoxy resin composition for semiconductor encapsulation according to any one of claims 1-7 (Abstract).

The reference does not explicitly disclose: (1) wherein the carbon precursor has a specific electric resistivity in a semiconductor region of $1 \times 10^2 \Omega^* \text{cm}$ or more but less than $1 \times 10^7 \Omega^* \text{cm}$; and (5) a resistivity range of $1 \times 10^4 \Omega^* \text{cm}$ or more but less than $1 \times 10^7 \Omega^* \text{cm}$. However, it appears that this would have been an inherent property because the reference satisfies all of the material limitations set forth in the instant invention. In light of this, it has been found that, "Products of identical chemical composition can not have mutually exclusive properties." A chemical composition and its properties are inseparable. Therefore, if the prior art teaches the identical chemical structure, the properties applicant discloses and/or claims are necessarily present – *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990).

Therefore, the resistivity ranges of claims 1 and 5 would have been inherently satisfied by the reference because the references satisfies all of the material limitations set forth in the instant invention.

Regarding claim 7, the reference does not explicitly disclose: (7) wherein the carbon precursor is produced by carbonizing a phenol resin at a calcination temperature of 600-650 °C. However, this is a product-by-process limitation. In light of this, it has been found that, “[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process” – *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985).

Therefore, the carbon precursor and composition of claim 7 would have been inherently satisfied by the reference because the product in claim 7 is the same as or obvious from the product of the prior art. The claim is unpatentable even though a different process may have made the prior product.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. JP 2001-019833 is related; however, the quantity of carbon precursor is too low.

Communication

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael J. Feely whose telephone number is 571-272-1086. The examiner can normally be reached on M-F 8:30 to 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on 571-272-1302. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Michael J. Feely
Primary Examiner
Art Unit 1712

September 18, 2006

**MICHAEL FEELY
PRIMARY EXAMINER**